**Exercise sheet 6 for Math 263: ODEs for Engineers**   Matt Roberts
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1. Write $3^i/16$ in the form

   (a) $re^{i\theta}$, where $r$ and $\theta$ are real numbers;

   (b) $a + ib$, where $a$ and $b$ are real numbers.

2. Find the general solution to

$$y'' + 6y' + 9y = e^x,$$

   (a) by using the "find the solution to the homogeneous part and guess a particular solution to the inhomogeneous part" method;

   (b) by using the differential operator method.

3. Find the solution to

$$x^2 y'' + 7xy' + 9y = x, \quad x > 0, \quad y(1) = 0, \ y'(1) = 0.$$

If you spot any errors, please inform me: `matthew.roberts@mcgill.ca`